## **CLAIMS**

What is claimed as new and desired to be protected by Letters Patent, as set forth in the appended claims is:

- An electric fish barrier in a body of water having a surface and a bottom, said 1. 1 fish barrier comprising: 2
- a water intake for diverting water from the body of water of water to a a) 3 new location, the water intake being disposed within said body of water; 4 5
  - an electrical source for generating a voltage potential between a first terminal and a second terminal;
    - a first plurality of electrode structures respectively comprising a primary **b**) electrically conductive member disposed in said body of water, said primary conductive members being in electrical continuity with said first terminal of said electrical source; and
    - a second plurality of electrode structures respectively comprising a c) complementary electrically conductive member disposed in said body of water, said complementary conductive members being in electrical continuity with said second terminal of said electrical source, a voltage gradient being formed within said body of water between said primary elongated conductive members and said complementary elongated conductive members form.
  - The electric fish barrier according to claim 1 wherein said voltage gradient 2. 1 includes a minimum contiguous gradient throughout an effective barrier zone. 2
  - The electric fish barrier of claim 1 further comprising an attraction flow of water 3. 1 flowing toward said water intake, wherein a portion of said attraction flow of water 2 flows through said effective barrier zone, said attraction flow being sensible to a fish 3 and oriented according to a flow axis. 4

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- 1 4. The electric fish barrier of claim 3 wherein said effective gradient comprises an
- 2 equipotential voltage plane that is substantially perpendicular to said flow axis.
- 1 5. The electric fish barrier of claim 2 wherein said first plurality of electrode
- 2 structures are oriented along a first line.
- 1 6. The electric fish barrier of claim 5 wherein said second plurality of electrodes are
- 2 oriented along a second line that is substantially parallel said first line.
- 1 7. The electric fish barrier of claim 2 wherein some of said first plurality of
- 2 electrode structures are oriented along a first curved path.
- 1 8. The electric fish barrier of claim 7 wherein some said second plurality of
- 2 electrode structures are oriented along a second curved path conforming substantially
- 3 in shape to said first curved path.
- The electric fish barrier according to claim 2 wherein an electrically conductive
- 2 member has a first end at a first depth and a second end at a second depth greater
- 3 than the first depth.
- 1 10. The electric fish barrier according to claim 9 wherein second depth is less than
- 2 a bottom depth of said body of water.
- 1 11. The electric fish barrier according to claim 9 wherein said first depth is beneath
- 2 the surface of said body of water.
- 1 12. The electric fish barrier according to claim 9 wherein each electrode structure
- 2 comprises a support pile.

- 4 13. The electric fish barrier according to claim 12 wherein the support pile includes
- 5 a conductive structural member.
- 1 14. The electric fish barrier according to claim 13 wherein the conductive structural
- 2 member is an outer support pipe is filled with concrete.
- 1 15. The electric fish barrier according to claim 12 wherein said electrically
- 2 conductive member is supported by said support pile.
- 1 16. The electric fish barrier according to claim 15 further comprising an insulating
- 2 member to insulate said electrically conductive member from said support pile, said
- 3 support pile comprising an electrically conductive structural member.
- 1 17. The electric fish barrier according to claim 15 wherein the support pile has an
- 2 electrically conductive structural member in electrical continuity with said electrically
- 3 conductive member.
- 1 18. The electric fish barrier according to claim 13 wherein said conductive member
- 2 is formed from an exposed region of said conductive structural member.
- 1 19. The electric fish barrier of claim 18 wherein said conductive structural member
- 2 is supported by an insulative concrete foundation.
- 1 20. The electric fish barrier according to claim 12 wherein each pile has an upper
- 2 end terminating proximate said surface of said body of water.
- 1 21. The electric fish barrier according to claim 20 wherein the body of water is a
- 2 reservoir is formed by a dam, the fish barrier further comprising a structural brace
- 3 secured to the dam, and wherein an upper end of each pile is secured to the structural

- 4 brace.
- 1 22. An improved electric fish barrier for deterring fish from entering a water intake
- 2 in a body of water, wherein water flowing into the intake forms an attraction flow for
- fish, the improved electric fish barrier comprising a first plurality of conductive
- 4 members at a first voltage potential and a second plurality of conductive members at
- a second voltage potential, thereby forming a contiguous effective voltage gradient
- 6 along an axis of said attraction flow, and wherein a portion of said attraction flow
- 7 passes through said contiguous effective voltage gradient.
- 1 23. The improved electric fish barrier of claim 22 wherein said body of water has a
- 2 bottom and a surface, wherein said contiguous effective voltage gradient does not
- 3 extend from said bottom to said surface.
- 1 24. The improved electric fish barrier according to claim 22 wherein said body of
- water has a bottom, and wherein each conductive member has a lower end and an
- 3 upper end, wherein a lower end of a conductive member is disposed a predetermined
- 4 distance from said bottom of said body of water.
- 1 25. The improved electric fish barrier of claim 22 wherein a conductive member is
- 2 formed by a conductive sheath, said conductive sheath being supported by a support
- 3 pile and electrically insulated from said support pile.
- 1 26. The improved electric fish barrier of claim 22, the body of water having a
- bottom, the fish barrier comprising support piles supported by an electrically insulative
- foundation on a bottom of said body of water, a conductive member of said first
- 4 plurality of conductive members being formed by an exposed metal surface of said
- 5 support pile.